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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/743,162      | 12/22/2003  | Manish Singh         | P16475              | 7748             |

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EXAMINER

NGUYEN, THAN VINH

ART UNIT PAPER NUMBER

2187

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,162

Applicant(s)

SINGH, MANISH

Examiner

Than Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Claims 1-30 are pending.

#### *Claim Rejections - 35 USC § 102*

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-15,17-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Coyle et al (US 5,367,653).

As to claim 1,15,17,21,26,29,30:

3. Coyle teaches a cache/node/article and its method having processor (CPU; 1/13); a configurable bit that is configurable to identify one of a set having at least one line of information storage (configurable tag bits that can be used as tag bits or set/lines/index bits; Fig. 7; 6/48-54; 7/1-22; 9/10-18; 13/20-52) and a tag to identify a line of information storage (tag bits; Fig. 7). Coyle reconfigures the tag bits 5-20 to be used as tag or set/index/line bits (648-57; 7/8-22).

As to claim 2:

4. Coyle teaches the cache includes a piece of information, the set includes a plurality of lines in which the piece of information is stored (lines/set bits; Fig. 7; 9/5-17) and the tag identifies one of the plurality of lines within the set in which the piece of information is stored (tag bits; Fig. 7).

As to claim: 3

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5. Coyle teaches a second configurable bit, wherein one of the configurable bit and the second configurable bit is configured to identify the set and the other of the configurable bit and the second configurable bit is configured to identify the tag (tag bits and lines/index/set bits; Fig. 7).

As to claim 4,18,22,25:

6. Coyle teaches cache includes a plurality of lines of information storage and a configurable bit that is configurable to identify one of a set having at least one line of information storage (lines/set bits; Fig. 7; 9/5-17) and a tag to identify a line of information storage is associated with each line (tag bits; Fig. 7).

As to claim 5:

7. Coyle teaches the configurable bit is a set index bit when configured to identify the set having at least one line of information storage and the configurable bit is a tag bit when configured to identify the line of information storage (configurable tag bits that can be used as tag bits or set/lines/index bits; Fig. 7; 6/48-54; 7/1-22; 9/10-18; 13/20-52).

As to claim 6:

8. Coyle teaches the cache includes a plurality of lines of information storage and each line of information storage includes at least one set index bit (line/set/index bits 21-27; Fig. 7).

As to claim 7:

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9. Coyle teaches the lines of data storage include no tag bits (the tag bits can be configured to be all set/index/line bits; 6/48-57; 13/20-52).

As to claim: 8

10. Coyle teaches the cache includes a plurality of lines of information storage and each line of information storage includes at least one tag bit (tag bits 5-20).

As to claim 9:

11. Coyle teaches wherein the lines of data storage include no set index bits (the tag bits can be configured to be all set/index/line bits or just tag bits; 6/48-57; 13/20-52).

As to claim 10,19,23:

12. Coyle teaches wherein the configurable bit is configured as a tag bit and reconfigured as a set index bit (the tag bits can be configured to be all set/index/line bits or just tag bits; 6/48-57; 7/1-22; 9/10-18; 13/20-52).

As to claim 11,13,24,27,28:

13. It is inherent that all entries in the cache are invalidated/flushed prior to reconfiguring the configurable bit so that no address holds valid data prior to the configurable bit being reconfigured as a tag/set index bit. Invalidation/flushing is required since the address bits to be reconfigured would be invalid addresses.

As to claim 12,20:

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14. Coyle teaches the configurable bit is configured as a set index bit and reconfigured as a tag bit (the tag bits can be configured to be set/index/line bits and/or just tag bits; 6/48-57; 7/1-22; 9/10-18; 13/20-52).

As to claim 14:

15. Coyle teaches at least a second bit that is configurable to identify one of a set having at least one line of information storage and a tag to identify a line of information storage (the tag bits can be configured to be set/index/line bits and/or just tag bits; 6/48-57; 7/1-22; 9/10-18; 13/20-52; Fig. 7).

***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 5,367,653).

As to claim 16:

18. Coyle teaches configuring tag bits into tag/set/index bits but does not specifically teach the bit is configurable by movement of a jumper. One of ordinary skills would recognize that performing this function through software or hardware/jumpers are equivalent methods, both

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easily implementable by hardware or software. It would have been obvious to one of ordinary skills in the art at the time of the invention to implement the above functions through hardware jumpers if software accessibility is difficult.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The examiner can normally be reached on 8am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Than Nguyen can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Than Nguyen  
Primary Examiner  
Art Unit 2187